

PROCEEDINGS
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FIVE NEW MAMMALS FROM MEXICO AND ARIZONA.

BY E. A. GOLDMAN.

The following descriptions of hitherto unrecognized forms of mammals in the collection of the Biological Survey are based in part on material gathered by E. W. Nelson and myself, mainly in Mexico. One of the woodrats was included in a collection of mammals made by Charles Sheldon during a recent visit to the state of Sonora, Mexico.

Potos flavus guerrerensis subsp. nov.

GUERRERO KINKAJOU.

Type from near Ometepec, Guerrero, Mexico. No. 74,683, male adult, U. S. National Museum (Biological Survey Collection), collected by E. W. Nelson, and E. A. Goldman, February 15, 1895. Original number 7464.

General characters.—Size and color about as in *P. f. aztecus*; skull less elongated, the rostrum and frontal region relatively broad; audital bullæ more fully inflated, rounded and bulging conspicuously below basioccipital, instead of flattened as in all of its known relatives in Middle America.

Color.—Type: Upperparts near clay color (Ridgway, 1912), somewhat suffused with ochraceous-tawny, especially on neck, the top of head and back darkened by brownish-tipped hairs; underparts, including inner sides of limbs and under side of tail cinnamon-buffy, this color darkest across abdomen and becoming clay color along the sides; outer sides of limbs and feet to base of toes similar to back, the toes more brownish. Another specimen, an adult male, is richer, more ochraceous-tawny in color, with an elongated dark brown patch on the median line of the abdomen; also present in some specimens of other forms of the group.

Skull.—Similar to that of *P. f. aztecus*, but less elongated, the rostrum and frontal region relatively broad; basioccipital narrower and less distinctly ridged along median line; audital bullæ more inflated, projecting

more conspicuously below basioccipital; postorbital processes stout and tapering as in *aztecus*, not peg-like as in *P. f. chiriquensis*.

Measurements.—Type: Total length, 1050; tail vertebræ, 535; hind foot, 110. An adult male topotype: 950; 490; 103. *Skull* (type): Greatest length, 93.5; condylo-basal length, 89.1; zygomatic breadth, 61.9; interorbital breadth, 22.3; breadth of rostrum, 23.7; breadth across mastoid processes, 46.3; alveolar length of upper molariform tooth-row, 21.

Remarks.—An arm of the general range of the *Potos flavus* group extends northward in the tropical belt along the Pacific coast west of the high mountains of the interior to Papayo (near Acapulco), Guerrero, and perhaps farther. Specimens from this region do not differ appreciably in general size or color from *P. f. aztecus* of eastern Mexico, but the cranial characters are distinctive.

Specimens examined.—Four, from localities in Guerrero as follows: Near Ometepec (type locality), 3; Papayo, 1.

***Geomys personatus tropicalis* subsp. nov.**

TAMAULIPAS POCKET GOPHER.

Type from Alta Mira, Tamaulipas, Mexico. No. 92,946, male adult, U. S. National Museum (Biological Survey Collection), collected by E. A. Goldman, April 18, 1898. Original number 12,320.

General characters.—Similar in color to *G. p. personatus* and *G. p. fallax*; size rather small, about as in *fallax*, much smaller than in typical *personatus*; skull differing in detail from both, especially in the anteriorly spreading zygomata, slenderer posterior ends of premaxillæ, and narrower interpterygoid fossa.

Color.—Type (somewhat worn pelage): General color of upperparts between cinnamon and cinnamon-buff, fading to light buff along lower part of sides; the top of head and back thinly overlaid with brown; underparts white; feet thinly clothed with short whitish hairs; tail nearly naked; flesh-colored.

Skull.—Similar in size to that of *G. p. fallax*, much smaller than that of *G. p. personatus*; zygomata narrowing posteriorly, the sides less nearly parallel, and ascending branches of premaxillæ narrower, more tapering posteriorly than in *fallax* or typical *personatus*; interpterygoid fossa narrow; mastoid and audital bullæ shrunken in appearance much as in typical *personatus*, not swollen or rounded as in *fallax*.

Measurements.—Type: Total length, 270; tail vertebræ, 86; hind foot, 33. *Skull* (type): Condylo-basal length, 46.9; zygomatic breadth, 30.4; interorbital breadth, 6.2; length of nasals, 17.6; alveolar length of upper molar series, 10.

Remarks.—No specimens of the genus *Geomys*, as now restricted, have hitherto been recorded from Mexico. The discovery of a form of *G. personatus* in extreme southern Tamaulipas, therefore, materially extends the known range of the group to the southward.

Specimens examined.—Twelve, all from the type locality.

Neotoma albigula mearnsi subsp. nov.

MEARNS WOOD RAT.

Type from Tinajas Altas, near international boundary, southwestern Arizona. No. 202,981, male adult, U. S. National Museum (Biological Survey Collection), collected by E. A. Goldman, November 21, 1913. Original number 22,300.

General characters.—Closely allied to *N. a. albigula* but paler, the ground color of upperparts light buff instead of warm buff or light ochraceous-buff of Ridgway, 1912, as in that form; underparts purer white, the areas of basally plumbeous fur more restricted; tail less sharply bicolor, grayer above.

Color.—Type (fresh pelage): Upperparts light buff, nearly pure on cheeks, flanks and outer sides of limbs, the top of head and back rather thinly lined or overlaid with an admixture of black-tipped hairs; underparts, including lips, sides of muzzle, and inner sides of limbs white, the fur pure white to roots except along flanks and sides of abdomen where it is pale plumbeous basally; ears grayish, edged with white; feet white; tail grayish above (light and dark hairs intermixed), white below.

Skull.—Like that of *N. a. albigula*; palate concave posteriorly and first upper molar with antero-internal reëntrant angle shallow, as in the typical form.

Measurements.—Type: Total length, 337; tail vertebræ, 165; hind foot, 35. Average of two adult topotypes: 332 (329–335); 158 (157–159); 32 (31.5–32.5). *Skull* (type): Greatest length, 43.2; zygomatic breadth, 21.5; interorbital breadth, 5.9; length of nasals, 16; length of anterior palatine foramina, 8.6; length of palatal bridge, 7.7; length of upper molar series, 8.5.

Remarks.—The pallid coloration of this form readily distinguishes it from *N. a. albigula* whose range includes most of Arizona, New Mexico, eastern Texas and much of northern Mexico. *N. a. mearnsi* is probably restricted to the extremely arid desert area extending from near the type locality southward along the eastern side of the Gulf of California—a region largely covered with shifting, whitish sand. Close comparison with *N. a. melanura* and *N. a. seri* of southern Sonora is unnecessary, both being darker forms with differing cranial details. The skull of *N. a. seri* is somewhat smaller and less massive, with narrower frontal region, smaller interparietal and slightly smaller audital bullæ. Some of the specimens of *N. a. albigula* from Sonoyta, Sonora, are pale and apparently show gradation toward the present form. The pallid coloration of three or four examples of *N. albigula* from Tinajas Altas and vicinity was pointed out by Mearns* who contrasted them with the darker animals inhabiting the Gila River bottom. It was not until the accession of new material that the necessity of recognizing a new form became apparent. It is named for Dr. E. A. Mearns who collected specimens at the type locality more than 20 years ago.

Specimens examined.—Ten, all from southwestern Arizona as follows:

* Mammals of the Mexican Boundary, Bul. 56, part I, U. S. Nat. Mus., p. 480, 1907.

Gila Mountains (near Tinajas Altas), 3; Granite Mountains (near Tule Wells), 1; Tinajas Altas (type locality), 4; Tule Wells, 2.

***Neotoma albigula sheldoni* subsp. nov.**

SHELDON WOOD RAT.

Type from Pinacate Mountains (Papago Tanks), Sonora, Mexico, No. 206,812, U. S. National Museum (Biological Survey Collection), collected by Charles Sheldon, 1915.

General characters.—A dark colored form of the *N. albigula* group, differing from *N. a. albigula* and *N. a. mearnsi* in the peculiar vinaceous buffy general tone of the upperparts.

Color.—Type (fresh pelage): Upperparts in general vinaceous-buff, purest on shoulders and sides, the back rather strongly darkened by black hairs; head grayish; underparts white, the fur pure white to roots on throat, chest, and inguinal region, as usual in *N. a. albigula*; ears and orbital borders blackish; feet white; tail sharply bicolor, black above, white below. In one specimen the vinaceous-buff of sides extends across the abdomen, but the throat and chest are pure white as in the others.

Skull.—About like that of *N. a. albigula*.

Measurements.—Type (dry skin): Total length, 334; tail vertebrae, 136; hind foot, 32.5 *Skull* (type): Greatest length, 44; zygomatic breadth, 23.1; interorbital breadth, 5.5; length of nasals, 16.9; length of anterior palatine foramina, 8.9; length of palatal bridge, 7.4; length of upper molar series, 8.5.

Remarks.—In the pronounced vinaceous buffy shade of the upperparts and more copious admixture of black, this form contrasts strikingly with its exceedingly pallid relative, *N. a. mearnsi*, of the region along the international boundary, only 40 or 50 miles away. The two forms agree so closely in cranial details, however, that it seems best to regard them as subspecies. The dark color of the form inhabiting the Pinacate Mountains seems to be associated with that of its lava environment. It is named for the hunter-naturalist, Charles Sheldon, who collected the material which forms the basis of this description, and through whose interest and generosity much has been contributed to our knowledge of many North American mammals.

Specimens examined.—Ten, all from the Pinacate Mountains.

***Noctilio leporinus mexicanus* subsp. nov.**

MEXICAN BULLDOG BAT.

Type from Papayo, Guerrero, Mexico. No. 126,672, male adult, U. S. National Museum (Biological Survey Collection), collected by E. W. Nelson and E. A. Goldman, April 17, 1903. Original number 16,318.

General characters.—Closely resembling *N. l. leporinus* and *N. l. mastivus* but smaller, the difference in size most noticeable in the skull. Maxillary tooththrow short.

Color.—Male (type): About as in *N. l. leporinus*, the general color of upperparts rich, dark, ochraceous-tawny (Ridgway, 1912), becoming

tawny on the head, with a narrow stripe of paler fur along median line of back; underparts between zinc orange and tawny. Female: Upperparts near buckthorn brown; underparts pale yellow ocher.

Skull.—Similar in form to those of *N. l. leporinus* and *N. l. mastivus*, but smaller; maxillary tooththrow shorter, the teeth relatively broader, or more extended transversely.

Measurements.—Type (dry skin): Forearm, 83.2; tibia, 37; foot, 33.5. An adult male topotype: 83.9; 37.1; 32.9. Two adult female topotypes: 82, 85.8; 35.5, 36.8; 32, 31. Skull (type):* Greatest length, 28.5 (26.4, 26.2); condylo-incisive length, 25.2 (24.7, 24.3); zygomatic breadth, 19.8 (18.6, 18.7); interorbital breadth, 7.4 (7.1, 6.8); length of maxillary tooththrow, 10.7 (10.4, 10.1).

Remarks.—Specimens from various localities in South America and the West Indies have been used for comparison, of which those from Trinidad are assumed to represent typical *N. l. leporinus*,† while a pair from Mono Island have been taken to represent *N. l. mastivus*, in the absence of material from the type locality, the neighboring island of Saint Croix. While the exact status of *N. l. leporinus* and *N. l. mastivus* seems not entirely clear, South American, and West Indian specimens from as far west as Jamaica differ from the Mexican series, especially in larger size. The males in forms of *N. leporinus* are larger than the females. Occasional females, in the Mexican form, at least, may, however, have forearms about as long as males of greater general dimensions.

Specimens examined.—Nine, all from the type locality.

* Measurements of two adult female topotypes in parentheses.

† Type locality, Surinam (see Thomas, Proc. Zool. Soc. London, p. 131, March, 1911).